

HD-CCTV DVR



HD1600M Full HD Digital Video Recorder

Key Features

- 16CH HD-SDI Stand-Alone DVR
- The World's First HDcctv Certified 16CH DVR
- 100/120fps Recording at 1080p, 200/240fps at 720p
- Adjustable Recording Quality/Speed Setup per Each Channel
- Support High Resolution Over 1200TV Line in Live/Playback
- Support Dual Codec(H.264,JPEG) / Multi Stream(Full HD/HD/D1/CIF)
- Support 1920x1080 Resolution via HDMI and VGA Port
- Built-in Multiplexer for 16CH Live Monitoring and Playback (1/4/9/16 Mode)
- Support IPFR (Intelligent Power Failure Recovery) File System
- 4 Internal SATA Type HDDs
- Support Max. 64TB(NVS04R Connection via Giga Ethernet) or Max 16TB(e-SATA)
- Date/Time, Calendar, Event, Thumbnail, Smart, Text Search Available
- At-the-PC Playback of Removed DVR HDD
- Lightning Protection on HD-SDI, RS-485, DIO ports
- Provide Bundle CMS Managing 1,024 DVRs in Various Ways such as E-map, Viewset
- Java Viewer for Chrome, Firefox, Safari
- Various Mobile Platform Support (iPhone/Android Viewer and Mobile page)
- Full SDK available for Easy and Powerful Customization

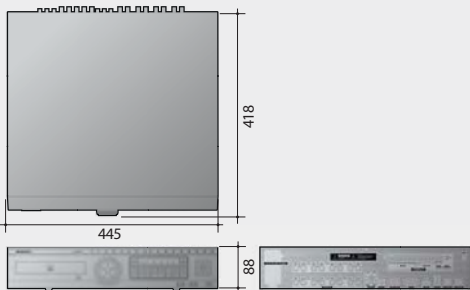
Front



Back



Dimension (unit:mm)



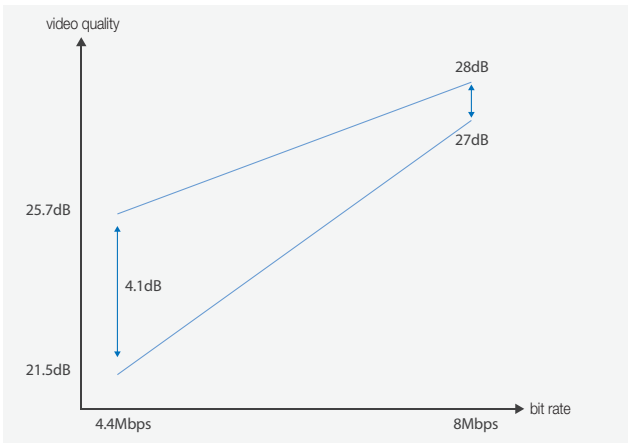
Specifications

VIDEO INPUT	
Video input standard	SMPTE 292M (HD-SDI)
Resolution / framerate	SMPTE 274M(720p, 1280x720) : 25/50, 30/60, 29.97/59.54 fps SMPTE 296M(1080p, 1920x1080) : 25, 30, 29.97 fps (Input format auto detection)
Connectors	16ch, 75Ω BNC connector
VIDEO OUTPUT	
Video Output	HDMI / VGA 1, 4, 9, 16 mode User defined sequence / alarm pop-up 1920x1080p at HDMI / VGA port
RECORDING	
Compression	H.264 / JPEG
Resolution	1920*1080, 1280*720
Rate	120fps/100fps at 1080p 240fps/200fps at 720p
Quality	720p 5 levels , 1080p 7 levels
Mode	Manual & Event / Schedule & Event / Continuous & Event
Schedule	24hrs / 7days
PLAYBACK	
Mode	Instant playback / search
Speed	60fps/50fps at 1080p 120fps/100fps at 720p
Search type	Time, calender, event, thumbnail
Block playback	24hours ~ 31days
EVENT & ALARM	
Event source	MD(Motion Detection), sensor, text
Event check schedule	24hrs / 7days
Event action	Buzzer, relay, e-mail, twitter, FTP, alarm pop-up
MD area	22x15
Sensor input	Dry contact (N.O. or N.C. selectable)
Text input	POS/ATM support, AVE VSI Pro/Hydra support
SYSTEM ALARM	
Alarm source	HDD fail, HDD almost full, fan fail, Pwd fail, WRS fail
Alarm action	Warning message, buzzer, e-mail, relay, twitter
AUDIO	
Input/output	4ch input / 1ch output
Compression	16KHz, 16bit sampling ADPCM
Direction	Both
PTZ	
Protocols	35 models including C1080, C1080PT-Z20, Pelco-D, Pelco-P, Samsung, and Panasonic

NETWORK	
Interface	10/100 Ethernet
Type	Fixed IP, Floating IP, xDSL
WRS	Supported
Bandwidth limit	Supported
NTP	Server / Client / Both
Users	10 monitoring, 2 playback
Streaming	1 HD H.264 same as recording 1 additional H.264 smaller than recording 1 JPEG for e-mail sending or mobile
SECURITY	
User level	1 admin, 10 users
User privilege	Menu, PTZ, relay, playback, power off, power on, copy, network MIC
IP filtering	Supported
STORAGE & BACKUP	
Storage devices	4 internal SATA HDDs, 1 external eSATA I/F, 1 ethernet for network storage (NVS04R)
Mirroring	Supported
File system	Proprietary file system, data-loss protection against power-failure
Capacity	Max 16TB with SATA, Max 64TB with cascaded NVS04R
Backup type	Multi-channel or single channel avi file
Backup device	Internal DVD or USB drive(2 port)
S.M.A.R.T.	Temperature and health
SERIAL & I/O	
Serial port	1 RS-232C, 2 RS-485
Sensor input	16 dry-contact
Relay output	4 relay
CONTROLLER	
Device	Front panel, IR remote, joystick KBD, mouse
SOFTWARE	
Web viewer	Monitoring / Event / PTZ / Playback with IE
Java viewer	Monitoring / Event/ PTZ with IE, Chrome, Safari
Mobile viewer	Monitoring with PTZ, iPhone & Adroid supported
CMS	Control center standard, max 1000 clients
SDK	ActiveX(COM) SDK
ENVIRONMENTAL & PHYSICAL	
Dimension	445(W) x 418(D) x 88(H) mm
Weight	10 Kg (No HDD)
Operating temperature	5℃ ~ 45℃ (41°F ~ 113°F)
Power	AC free volt (100 ~ 240VAC)
Power consumption	Max. 100W Typical 70W (1HDD)
Approval	KC, FCC, CE, RoHS, HDcctv

HD-CCTV DVR Features

Broadcast quality using High Fidelity Video Codec



The HD DVR Series adopted a high-performance video codec which is used for broadcasting to show excellent video quality. Since this codec is using a toolset which requires a high level H.264 compression technology, our HD DVR series shows better quality than any competitors'. The following graph shows the superiority of Webgate's video quality by 1dB ~4.1dB over 4.4Mbps ~ 8Mbps.

Webgate's video image



Competitor's video image



Multi-Streaming Technology

All of Webgate's products support multi-streaming, satisfies various network requests like high-quality monitoring, low bandwidth consumption, and mobile monitoring.

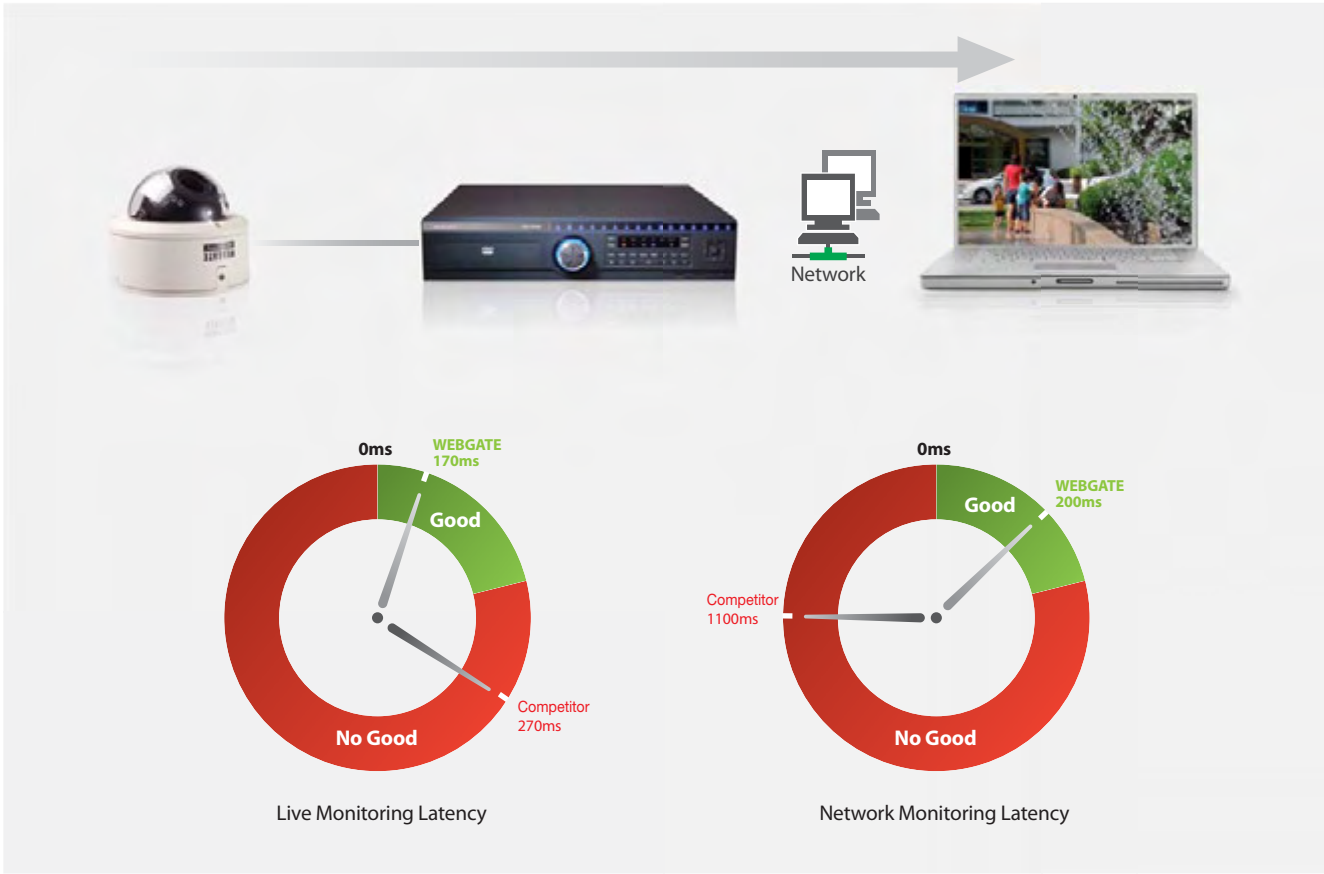
The HD DVR series provide 3 video streams. Two H.264 video streams of HD and SD, and one JPEG SD stream. The user can easily change the second SD stream's resolution, quality, and framerate regardless of recording settings. The user can obtain high-quality HD video images, distribute several streams, or can check video images through twitter, mobile phone, ftp, e-mail, and so on.

All these actions are automatically performed during the communication between DVR and CMS. Users don't need to worry about what type of stream he/she uses, and won't need to turn off the other DVR functions to use these multiple streams.

HD-CCTV DVR Features

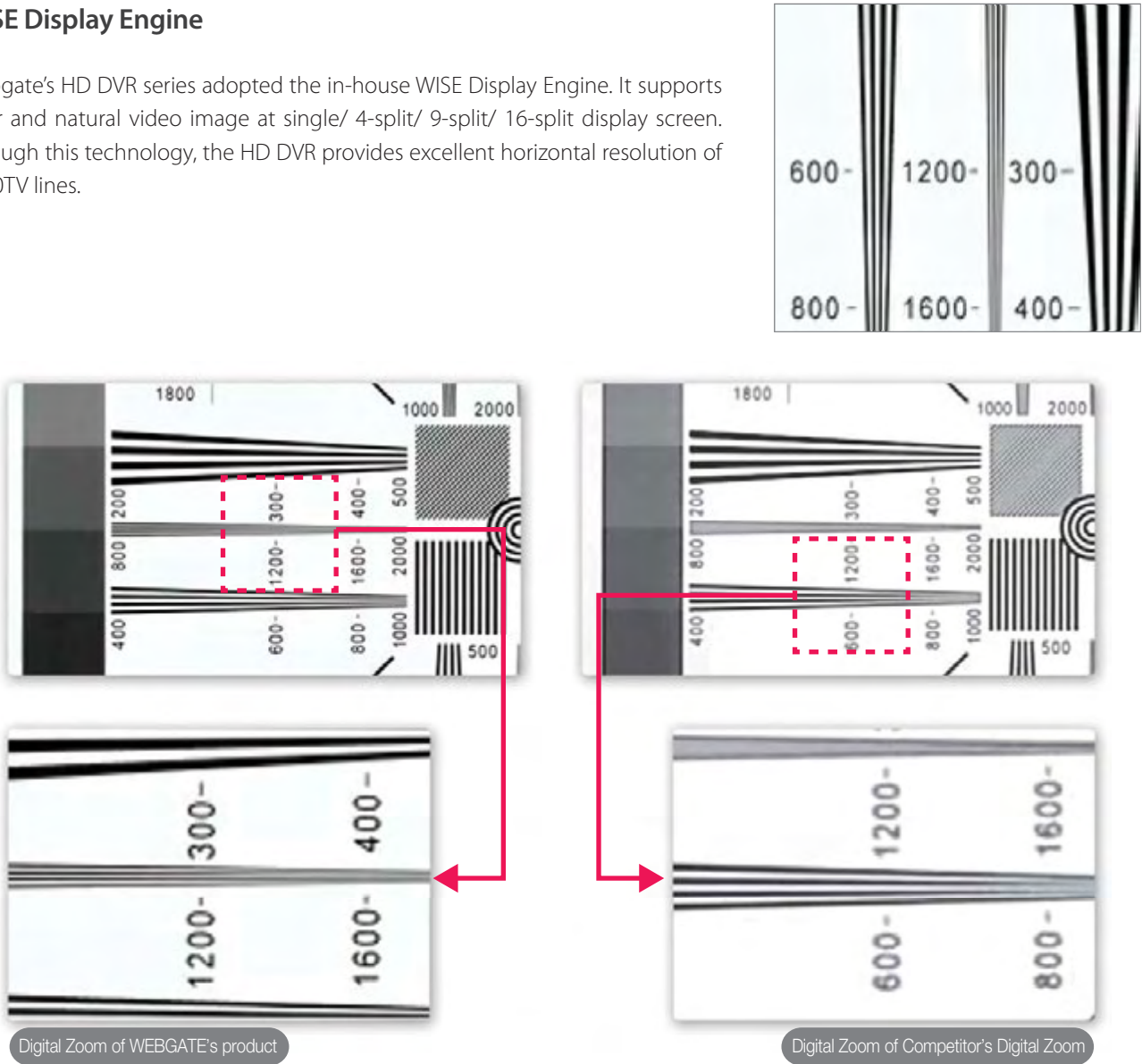
Rapid network response using SLL(Super Low Latency) technology

The HD DVR's video codec starts its compression before an image has fully filled up the memory, and finishes its compression as soon as the image is completely filled up the memory. This technology is called SSL and because of this, the HD DVR shows close to 0 video delay even though the video is transmitted through a network. This network delay is less than competitor's HDMI video delay of 270ms.



WISE Display Engine

Webgate's HD DVR series adopted the in-house WISE Display Engine. It supports clear and natural video image at single/ 4-split/ 9-split/ 16-split display screen. Through this technology, the HD DVR provides excellent horizontal resolution of 1200TV lines.



Self-developed WISE Display Engine provides the best video quality both at multi-screen display and Digital-zoom condition.

HD-CCTV DVR Features

High Performance, High Reliability Video File System (VFS)

Webgate's VFS is a specialized DVR file system that minimizes the hard disk drive header's movement. It also always saves data into consecutive sectors. By using VFS, the DVR can maximize HDD's performance and could improve reliability and life-cycle of HDD.

IPFR(Intelligent Power Failure Recovery) Technology

The SMPS is specially designed to protect circuit control so data on the HDD will not be destroyed during a sudden power failure. In some cases where data is lost, the IPFR minimizes this loss within the last single frame instead of the entire block.

Diverse bad block management

If any trouble occurs inside the HDD, the HDD will mark the relevant block to prevent further access. If there are too many defects to record, the DVR will hand over recording to the next HDD. The DVR shows the total quantity of bad blocks which were found both from the DVR and reported by the S.M.A.R.T function. The user may then perform data backups before the HDD completely fails. If any trouble occurs, the DVR will send notification by e-mail, relay, popup windows, and other methods.

Mirroring

When saving data into two HDDs at the same time, if one HDD fails, the user can still recover recorded data from the other HDD. Since banks and casinos require strict regulations against losing data, mirroring technology is mainly used.

Mass strage

Aside from the default communication network port, the HD DVR provides additional Gigabit Ethernet ports. WEBGATE's storage(NVS04R) can expand the DVR's HDD capacity up to 64TB using this port. The NVS04R has two network ports that can be cascaded up to 8 units without an additional hub network device. If the Mirroring function is in use, two 64TB storages are used to save the same video data. Additionally, external eSATA storage which may have RAID technology can be connected to HD DVR's eSATAport, and this can expand the DVR storage up to 16TB.



At-the-PC Playback

The HDD within the DVR can be accessed directly from a PC. The HDD can connect to a PC through USB or eSATA. Windows cannot support the HDD's read/write directly, however through the CMS software, the operator can do all the necessary work such as Playback, Search, and Backup. When the DVR is broken, the user can play recorded data and create backups using CMS. Since all these processes only need to be able to read, the HDD will not show any trouble after being re-installed to the DVR.

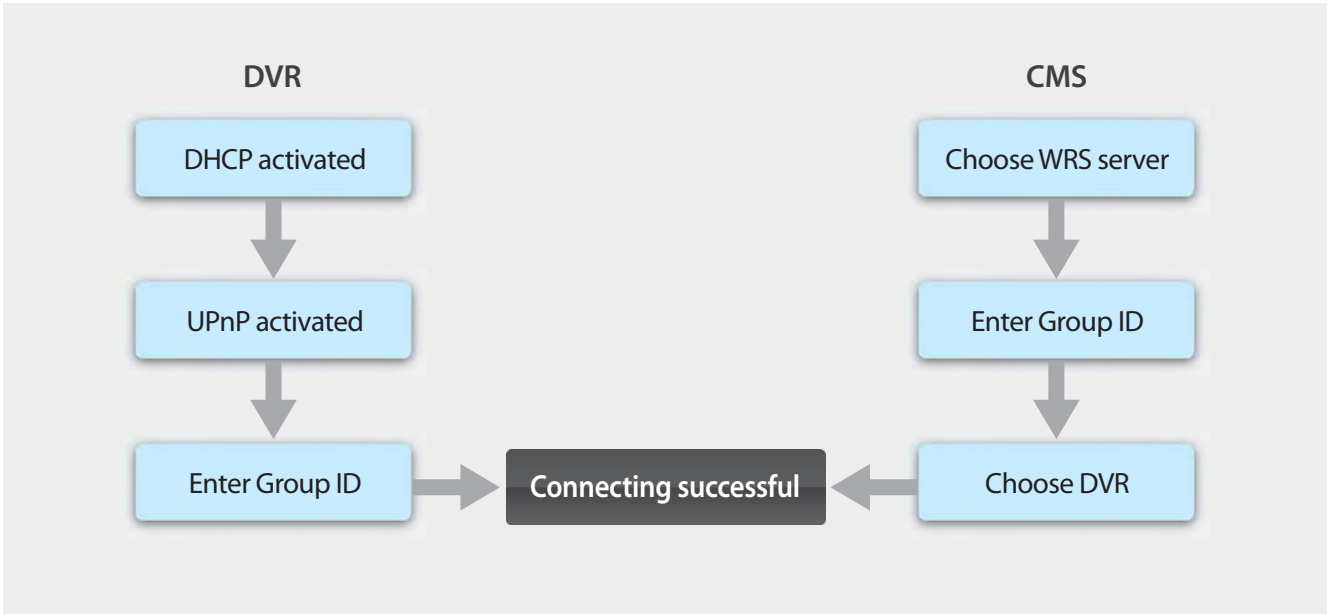
When a full HDD backup is necessary, the above method provided is a simple solution.



HD-CCTV DVR Features

Simple Plug & Play Network Installation

By enabling UPnP protocol and WRS service, operator can connect to a DVR which has a dynamic IP through the network without router configuration.



Auto port forward using UPnP

If a DVR shares the port number to the router by UPnP protocols, the router can deliver the connection request from an external source to the DVR automatically. Users don't need to configure the router.

WRS(WEBGATE Registration Service)

WRS is a network service that manages the DVR which has both a public and dynamic IP. If the operator inputs a group ID in the DVR menu, the group ID is registered to Webgate's WRS server. Since the CMS shows the DVR list under the same group ID by communication between CMS and WRS, users can easily connect to the desired DVR. There is no need of membership registration, or remembering of MAC address or S/N.

Frame by Frame step reverse

Due to the high performance codec and WISE display engine, the DVR can provide forward and reverse step playback by frame. In cases of racetracks and casinos, all frames are valuable. When the user wants to find any single frame, it will be very effective.

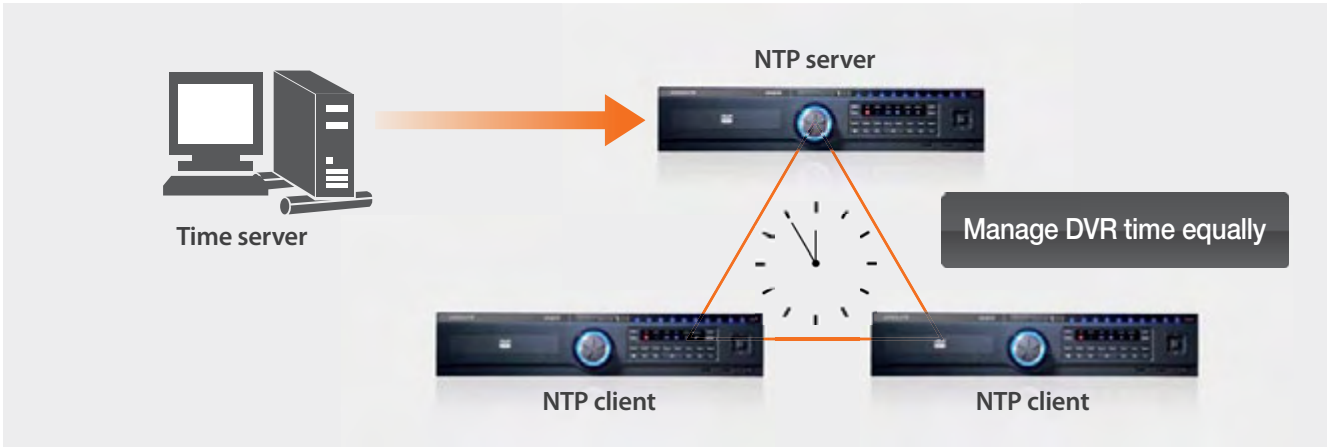


Advanced Lightning Protection

WEBGATE's lightning protection meets the requirements of the international surge standard IEC 61000-4-5's level 5, and can protect 8KV/500A. The DVRs are built with advanced protection from lightning as a precaution to minimize damage from electrical storms. The HD-SDI product line of high-frequency signals, RS-485 communication lines have the advanced surge protection circuit. This also includes protection for the sensor/relay as well.



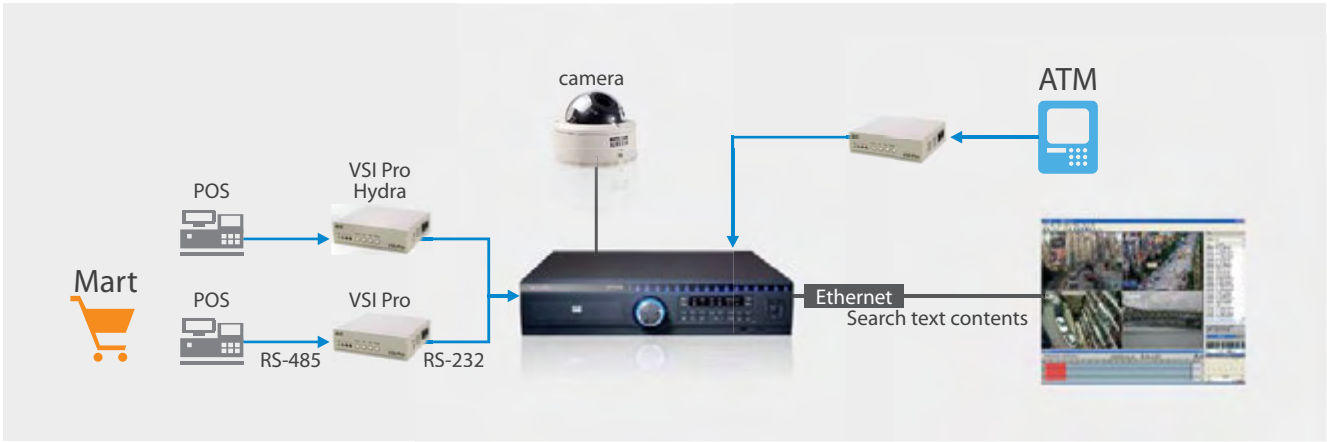
HD-CCTV DVR Features



Time Synchronized DVR Network

The DVR can get time information from the NTP and be configured to work as an NTP server itself. This will allow one DVR to get the time information from the NTP server, and distribute the acquired information to other DVRs on the local network at the same time. This way there will be no time difference within each DVR.

In the case that a DVR is not connected to a network, the DVR's temperaturecompensated real-time clock guarantees less than 0.1 second error in one day.



Interface with POS/ATM

WEBGATE DVR can interface with the VSI product lines that contain 300 types of POS/ATM protocols within. Through the family of VSI products, the DVR can record text data, provide search, and playback. By connecting multiple VSI products, the DVR can recieve text data from several POS devices and can connect the text data to the desired video channel. The DVR records video and text data separately, and can overlay the text data on video when necessary. The CMS also supports text search.

Status notification by SNS (Social Network Service)

By connecting the DVR with twitter, a user can easily check or be notified of status and alarm events anytime and anywhere. While conventional e-mail notification can support only 1 person, the SNS can support many people at the same time. An operator can set permissions to allow who may recieve notifications.



Multi platform support by Java viewer

Webgate's DVRs are embedded with Java Viewer which support connections from different operating systems such as Mac and linux. Users can access PTZ control, video monitoring, event/alarm through browsers such as IE, Chrome, Safari, and FireFox.



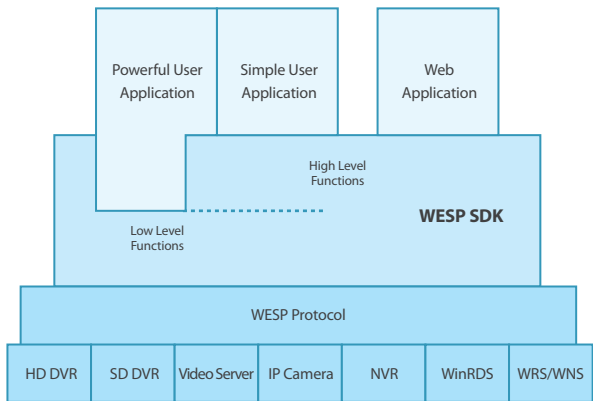
HD-CCTV DVR Features

Centralized Password Management

The Webgate DVRs contain radius protocols in which a server can change every DVRs’ password at once. This function is instrumental when needs of security policies require periodic password changes in establishments such as banks and other secure facilities.

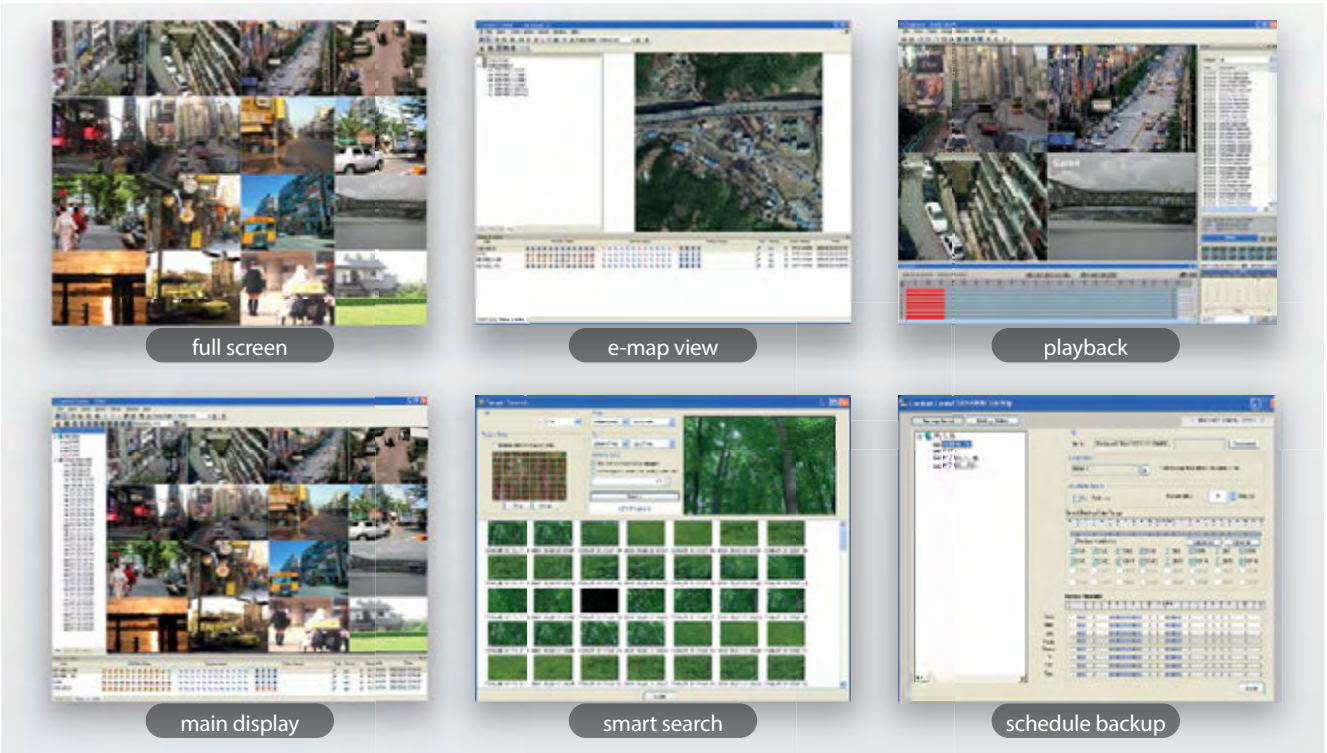
Flexible and powerful WESP SDK

Due to the flexibility and interoperability of the WESP(Webgate Embedded Standard Protocol) SDK, it supports all functions of equipment so that a user can easily develop their own applications. This SDK supports a broad range of equipment from low to high levels such as video data receiving and playback with caption display. The user can develop programs based on their coding capabilities. Since all of Webgates’ products conform to the WESP protocol, if a user creates a program, that same application can be used with other Webgate products. The WESP SDK was developed based on Microsoft COM technology, and it supports various programming languages (VB, VC++, VB Script, Java Script, .NET). Web developers who are familiar Java Script can create their own customized applications to fit their needs. The Webgate Embedded Standard Protocol Software Development Kit is constructed to empower the user to secure, adapt, and overcome virtually any environment the way the user sees fit.



Powerful CMS : Control Center Standard/ Pro/ Enterprise

Control Center Standard is provided as a bundled software for the DVR. It can manage a maximum of 1024 DVRs, 2monitors, and provides View Set, user-specific authority settings. It also provides real time even status, and all the other necessary functions. Diverse search methods are also included such as Time, Calendar, Event, Thumbnail, and text based search to help the operator play back recorded video data with ease. The Control Center Pro includes all functions of the standard version, but also provides functions which are necessary for for a large scale central control system. it supports a maximum of 6 monitors, provides rule-based actions which the operator can define a series of actions. The DVR can also record the operator’s CMS control history. The Enterprise version provides a Virtual Matrix System. One server PC can control a maximum of 50 client PCs’ CMS. This allows large scale of systems to be constructed without using the HD-SDI matrix device.



Mobile Viewer : WebEye

WebEye is a mobile application for DVR that supports iOS and Android. An operator can register DVRs, monitor video, and control PTZs. Its system log informs any malfunctions that may occur such as power failures, HDD trouble, and shows event logs with an alarm history. It can support full-frame video display, connect a HD DVR, and provide HD video. The user can also take advantage of the Digital Zoom Function directly on their smart phone with touch screen pinch zoom capabilities.

